

Evaluating the East Asian Model of Low Fertility Hypothesis: Evidence from Japan

Fumiya Uchikoshi,[†] *Princeton University*
Ryota Mugiyama,[†] *Gakushuin University*
James M. Raymo, *Princeton University*

Introduction and Research Questions

One of the key features of the Second Demographic Transition is the decoupling of marriage and childbearing (Lesthaeghe 2010: 211; Zaidi and Morgan 2017). In many parts of Western Europe and North America, this has taken the form of rising levels of cohabitation and nonmarital childbearing (Hayford et al. 2014; Perelli-Harris et al. 2012). In contrast, the strong relationship between marriage and childbearing is an enduring feature of family formation in East Asia (Raymo et al. 2015), a region characterized by decades of below-replacement fertility. Importantly, the tight link between marriage and childbearing plays a well-documented role in low fertility, with low total fertility rates (TFR) in East Asia largely due to later and less marriage in combination with stable marital fertility and negligibly low levels of nonmarital childbearing (Atoh et al. 2004; Iwasawa 2002; Raymo et al. 2015; Tsuya and Mason 1995).¹

Because childless marriages are rare in East Asian societies (Raymo et al. 2015; Yu and Xie 2021), scholars have emphasized the role of childbearing intentions or desires in the transition to marriage and the role of parenthood as an integral part of a “package” of family expectations and obligations that accompany marriage (Bumpass et al. 2009). In this context, we expect that marriage decisions are partly driven by fertility intentions and desires,² a simple insight that has not been evaluated empirically in previous research. Some evidence that marriage behavior may be partially influenced by changes in intentions or incentives to have a child can be found in a recent survey experiment that found exposure to existing pro-family and fertility policies to be associated with significantly higher marriage intentions (Gong and Wang 2022).

Drawing on nationally representative longitudinal data in Japan, we investigate whether and how fertility desires are associated with the transition to marriage. This is a critically important policy question given that most pronatalist policies in Japan and other East Asia have focused on married couples (Jones 2019), typically by expanding parental leave or childcare subsidies and services. The possibility that policy efforts to increase fertility may also impact unmarried individuals’ fertility intentions or desires provides an additional rationale to focus on family policies incentivizing childbearing.

In this study, we examine two hypotheses. First, we expect that, net of marital desires, those with stronger fertility desires are more likely to marry than those with weaker fertility desires (Hypothesis 1). Second, we expect that the association between marital desires and the transition to marriage is moderated by fertility desires. Specifically, we posit that the positive association between marital desires and the transition to marriage is enhanced for those with

¹ Note that nonmarital childbirth is uncommon in Japan – approximately 2.4% of children were born to unmarried mothers in 2021 (National Institute of Population and Social Security Research 2022).

² It is important to distinguish between desires and intentions. The former is thought to represent underlying attitudes and predispositions, while the latter reflects more planned behaviors based on desires as well as perceived constraints to realize those desires (Miller 2011; Thomson 1997). In this abstract, we examine measures of desires in analysis while we discuss both in the background.

stronger fertility desires (Hypothesis 2a) and reduced for those without fertility desires (Hypothesis 2b).

Data and Method

In this study, we use data from Japanese Life-course Panel Survey (JLPS), covering the period 2009–2022. JLPS is a nationally representative longitudinal survey conducted annually by the Institute of Social Science at the University of Tokyo. JLPS is based on two samples, one of men and women aged 20–40 in 2007 (born in 1966–86) and the other of men and women aged 20–31 in 2019 (born in 1987–1998). While data are currently available for wave 1 (2007) through wave 16 (2022), we use data starting from wave 3 (2009) when fertility desires were first included in the survey instrument.³ The analytical sample is thus comprised of person-year observations of never-married, childless men and women between the ages of 20 and 49.⁴

Our dependent variable is the respondents' transition to first marriage between year t and $t+1$. In each wave, respondents were asked the following question about marital status: "What is your marital status?" Response options were: "never married" "currently married" "divorced," and "widowed." We treated the transition from "never married" at wave t to "currently married" at wave $t+1$ as marriage formation.

Our measure of primary interest is fertility desires. JLPS asked respondents their fertility desires in the following way: "Do you want to have a child? If you have one already, please answer if you want to have another child." Response options were: "want a boy," "want a girl," "want a child regardless of sex," "do not want," and "don't know." We coded answers to the first three options as positive attitudes toward childbearing, the fourth option as negative attitudes, and the last option as ambivalent attitudes. Because marriage and childbearing can be seen as components of a family "package," we also need to measure respondents' marriage desires. Respondents were asked "What are your thoughts regarding marriage?" and to choose their desires from the following options: "I definitely want to marry," "I want to marry if possible," "I don't care if I marry or not," "I'm not thinking about marriage," and "I don't want to marry." This range of options allows for a nuanced understanding of how young adults are thinking about marriage and childbearing (Raymo, Uchikoshi, and Yoda 2021). We coded the first two options as positive marriage desires, the third and fourth options as ambivalent desires, and the last option as negative desires.⁵ We treat both fertility desires and marriage desires as time constant measures using responses from the wave when respondents first answered these questions. This decision is based on the assumption that endogeneity between these desires and (planned) marital behavior likely increases in anticipation of marriage. However, results are similar when we use fertility desires and marriage desires at wave t or wave $t-1$ to predict the transition to marriage from wave t to wave $t+1$.

Control variables include age (and age squared), 5-year birth cohort, educational attainment (junior high school, high school, junior college, and BA+), employment status (standard employment, non-standard employment, self-employment, non-employment, and student), logged annual income, and city size. We use these data to estimate event history models for the transition to marriage as a function of fertility desires, net of marriage desires. These

³ Detailed information on the sampling procedure and data structure is provided by Ishida (2013) and Naka and Miwa (2020).

⁴ In our data, it is possible that relatively older unmarried individuals report their fertility desires for the first time in 2009. We suspect that fertility desires reported by relatively older people may reflect lower perceived prospects of marriage, thus resulting in reverse causation, with marriage desires influencing fertility desires. To assess the implications of this possibility, we estimated models after excluding those age 35 and older in 2009 and found no change in our results.

⁵ Results were similar when we included the ambivalent attitudes toward childbearing or marriage into negative attitudes.

analyses involved using information from the annual surveys to construct person-year records of exposure to the risk of marriage for each individual, which we then used to estimate discrete-time transition models.

Preliminary Results

Table 1 presents the distribution of marriage and fertility desires for men and women. We can see that these desires are highly correlated. For example, about 60% of women and 50% of men answered they wanted to marry and to have a child. Meanwhile, Table 1 also shows that there is a sizable number of men and women whose marriage and fertility desires differ. For example, 11.4% of women and 15.6% of men answered that they want to marry but are ambivalent about childbearing.

Table 2 presents the associations of fertility and marriage desires with the transition to marriage estimated from discrete-time transition models. As shown in Model 1, positive fertility desires, compared to ambivalent desires, are positively associated with the transition to marriage both for men and women (0.75 for women and 1.00 for men). Next, Model 2 indicates that controlling for marriage desire significantly reduces the fertility desire coefficients, but they are still statistically significant (0.49 for women and 0.75 for men). Looking at Model 3 which includes interactions between fertility and marriage desire, we can see that the interaction coefficients are not statistically significant.

Lastly, Figure 1 presents predicted probabilities of transition to marriage among those who state either positive, ambivalent, or negative marriage and fertility desires. These estimates are based on Model 3 in Table 2. As in Table 2, Figure 1 indicates that positive marriage desires significantly hasten the transition to marriage across all levels of fertility desires, except for men with negative fertility desires.

In summary, we found supportive evidence for Hypothesis 1 (positive fertility desires enhance the transition to marriage net of marriage desires) but we did not find the support for Hypothesis 2a (the positive association between marriage desires and the transition to marriage is enhanced by positive fertility desires) and Hypothesis 2b (the positive association is reduced by negative fertility desires).

Summary, Discussion, and Next Steps

This study makes both theoretical and empirical contributions to comparative perspectives on low fertility by providing descriptive evidence that increasingly heterogeneous fertility intentions and desires may play a role in explaining later and less marriage in societies characterized by the strong link between marriage and childbearing. In these societies, especially those in East Asia, it is reasonable to assume that childbearing (or pregnancy) is one of the main reasons for getting married. While previous studies in family demography have typically paid little or no attention to the potential role of fertility intentions and desires in marriage, our results suggest that marriage and childbearing are both part of a family package, at least in Japan. Since other East Asian societies share similar family contexts (Raymo et al. 2015), we suspect a similar role of fertility intentions and desires in China, Korea, and Taiwan.

In addition to these theoretical contributions, this study has important policy implications. Facing low and declining fertility, policymakers in Japan have implemented a series of pronatalist policies. These policies have typically targeted the childbearing of married couples, often through expansion of daycare centers or parental leave benefits, despite the fact that childbearing within marriage has been stable for decades. As such, critics have argued that

policies should support marriage given that declining fertility in Japan (and other East Asian societies) is largely the result of the trend toward later and less marriage (e.g., Atoh et al 2004; Iwasawa 2002). Thus, the critical question becomes whether efforts to facilitate childbearing within marriage will actually lead to more marriage and thus higher fertility. Our results suggest that policy efforts that effect change in fertility desires (i.e., lead young people to be more willing/interested in parenthood) may also contribute to higher fertility via their effect on marriage.

We recognize that one of the limitations of this study is the fact that marriage and fertility desires (or intentions) are simultaneously determined. It is therefore difficult to model one as a predictor of the other. In subsequent analyses, we hope to use other data sources that will allow us to partially solve this issue. We will also consider alternative measures of fertility desires including desired number of children and desired age of parenthood.

Table 1. Distribution of fertility desires and marriage desires, by gender

[A] Women				
Fertility desires	Marriage desires			Total
	Positive	Ambivalent	Negative	
Positive	811 (60.0)	77 (5.7)	1 (0.1)	889 (65.8)
Ambivalent	154 (11.4)	128 (9.5)	10 (0.7)	292 (21.6)
Negative	44 (3.3)	96 (7.1)	30 (2.2)	170 (12.6)
Total	1009 (74.7)	301 (22.3)	41 (3.0)	1,351 (100.0)
[B] Men				
Fertility desires	Marriage desires			Total
	Positive	Ambivalent	Negative	
Positive	588 (50.0)	54 (4.6)	0 (0.0)	642 (54.6)
Ambivalent	183 (15.6)	212 (18.0)	9 (0.8)	404 (34.3)
Negative	27 (2.3)	69 (5.9)	35 (3.0)	131 (11.1)
Total	798 (67.8)	335 (28.5)	44 (3.7)	1,177 (100.0)

Notes. Numbers of individuals at first observation periods are reported. Cell percentages are in parentheses.

Table 2. Logit models predicting transition to marriage by fertility and marriage desires for women and men

	Women			Men		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Fertility desire (ref: ambivalent)						
Positive	0.751*** (0.143)	0.497*** (0.150)	0.524 (0.374)	1.003*** (0.147)	0.749*** (0.159)	0.937* (0.375)
Negative	-0.214 (0.234)	0.032 (0.241)	-0.221 (0.371)	-0.220 (0.293)	-0.016 (0.299)	0.070 (0.391)
Marriage desire (ref: ambivalent/negative) ^a						
Positive		0.866*** (0.188)	0.763** (0.287)		0.698*** (0.195)	0.801** (0.272)
Fertility desire x Marriage desire						
Positive x Positive			0.000 (0.410)			-0.230 (0.413)
Negative x Positive			0.477 (0.487)			-0.158 (0.624)
<i>N</i> of person-years	6900	6900	6900	6828	6828	6828
LR chi-squared	301.663	325.569	326.729	329.639	343.564	343.882

*** $p < .001$, ** $p < .01$, * $p < .05$ (two-tailed tests). Log-odds ratios are reported. Standard errors in parentheses. Age, age-squared, education, employment status, logged individual income, and residential areas are controlled.

^a “Ambivalent” and “negative” marriage desires are integrated into one category.

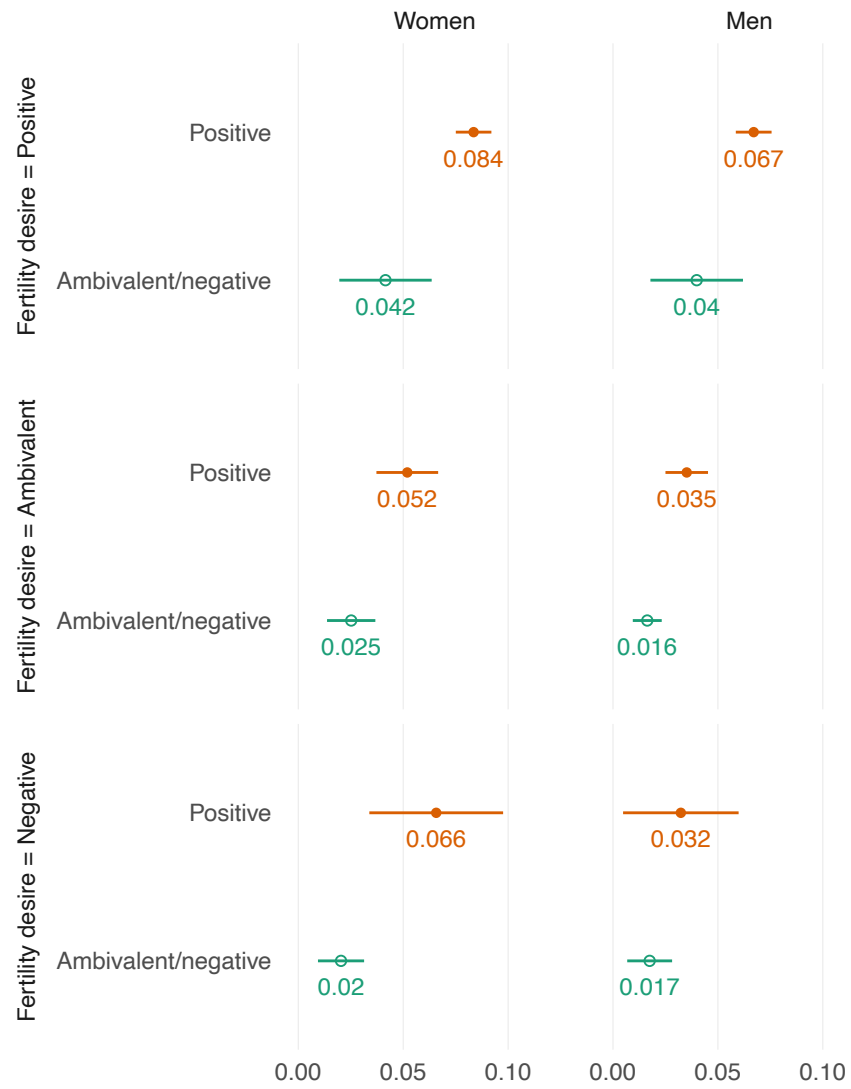


Figure 1. Predicted probability of transition to marriage by fertility and marital desires
Notes. The predicted probability of transition rates of marriage and the 95% confidence intervals are reported. These values are obtained from Model 3 in Table 2.